Jeremy Johnson

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden, Governor • Stephen M. Mahfood, Director

www.dnr.mo.gov

April 21, 2004

Mr. Joseph Haake
Group Manager
The Boeing Company
Dept. 464C, Bldg. 220
Mail Code S221-1400
P.O. Box 516
St. Louis, MO 63166-0516

RE: Comments on the Interim Action Remedial Work Plan for the Boeing Facility
Hazelwood, Missouri, Permit # MOD00818963

Dear Mr. Haake:

The Missouri Department of Natural Resources' Hazardous Waste Program (HWP) has completed review of the Interim Action Remedial Work Plan dated February 3, 2004. This interim action work plan is based upon the results of the Hydrogen Release Compound (HRC) pilot test conducted at the scrap metal recycling dock. The HWP has several comments that must be addressed by Boeing prior to granting approval of this work plan.

GENERAL COMMENT

The HWP understands that this interim measure is not expected to reduce contaminant levels in highly-impacted (source) areas to levels below site-specific risk-based criteria (recognizing that such criteria have not yet been established). The highest measured Tetrachloroethene Perchloroethylene (PCE) soil concentration at Solid Waste Management Unit (SWMU) 17 (SB-18) is approximately 10,000 mg/kg. This concentration suggests the presence of residual Dense Non-Aqueous Phase Liquid (DNAPL) in this area. Given the known subsurface conditions at SWMU 17, use of HRC can be expected to incrementally reduce total contaminant mass, and

contamination located outside of highly-impacted areas may be reduced to levels at or below yet-to-be-determined site-specific risk-based criteria. Based on the expected persistence of the injected HRC in the subsurface, any HRC remaining in areas surrounding highly-impacted source areas may act to "contain" contamination in those areas over the medium-term (i.e, as contaminants continue to leach to groundwater from highly-impacted soil areas, the presence of residual HRC should facilitate treatment of those dissolved contaminants until the HRC is used up). The essence of this comment is that it should be clearly articulated in the work plan that the proposed work will likely be incapable of treating highly contaminated subsurface materials to acceptable risk-based levels and that further remediation may be required to address such materials. It is also worth noting that, while acceptable, the approach contemplated by Boeing differs from the "traditional approach to HRC injection whereby areas that are highly contaminated (not amenable to complete treatment by HRC) are addressed first followed by HRC injection to facilitate biodegradation of lower levels of residual contaminants.

SPECIFIC COMMENTS

1. Section 2.2 Injection Permit.

   The HWP understands that additional approval/modification of the current underground injection control (UIC) permit by the department's Water Pollution Control Program (WPCP) is required to use this technology in an area other than the pilot study area if conditions differ. Given that the estimated amount of HRC to be injected (7000 lbs) exceeds the amount originally permitted (5000 lbs less the 810 lbs already injected during the previous HRC pilot study), HRC-X is proposed for use instead of HRC, and the presence of PCE at SWMU 17 (PCE is not present at the pilot study area), it appears that conditions differ between the areas. Please explain the procedure and/or the results of any UIC permit modification(s) completed through the WPCP to address these issues.

2. Section 2.4 Injection Points.

   The last paragraph in this section indicates that the HRC will be heated to "increase" its viscosity prior to injection. The department is assuming that this is a typo and that heating will be done to decrease, rather than increase, the HRC viscosity prior to injection.

3. Section 2.5 Groundwater Monitoring.

The work plan states that MWs 6S, 5I, 7S, and temporary piezometers TP-1, TP-2, and TP-4 will be sampled monthly for the first quarter and quarterly thereafter. The department understands that this form of HRC (HRC-X) can remain in the subsurface for up to six years. It is unclear if this quarterly monitoring is expected to continue throughout the estimated lifespan of the HRC-X and/or until risk-based cleanup levels have been achieved. In essence, the department expects that monitoring of this area will continue until it can be demonstrated that applicable clean-up levels have been achieved (including accounting for any potential contaminant rebound). Information from this monitoring should be routinely submitted to the department as part of Boeing's quarterly corrective action progress reports.

4. Section 2.6 Soil Monitoring.

Currently there is no Section 2.6 entitled Soil Monitoring; however, such a section must be added to the work plan. Since it is expected that highly contaminated soils will not be fully remediated through this interim measure, it will be important to determine the soil concentrations remaining once the subsurface HRC is fully depleted. A soil sampling strategy designed to determine representative soil concentrations at the end of the HRC interim measure must be included in the work plan. This strategy should be designed to help determine what, if any, additional remediation of residually contaminated soils may be necessary to achieve applicable risk-based clean-up levels.

5. Figure 4.

This figure illustrates the injection locations/injection mass for this interim measure. Please superimpose a depiction of building 52 including the pit area for the maskant tank. This information must be taken into account when designing the injection scheme because of the preferential flow paths these structures may have created for both historically released contaminants and the soon–to-be injected HRC.

Please revise and resubmit appropriate portions of the Interim Action Remedial Work Plan to address the foregoing comments within 15 days of receipt of this letter. If you have any

questions concerning this comment letter or require any additional information, please do not hesitate to contact me by phone at (573) 751-3553 or at the Missouri Department of Natural Resources, HWP, P.O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

HAZARDOUS WASTE PROGRAM

Patrick Quinn, P.E.
Environmental Engineer
Permits Section

PQ:sw

c: Ms. Joletta Golik, Airport Authority
Mr. Jeremy Johnson, United States Environmental Protection Agency Region VII
St. Louis Regional Office